

[0085] Referring to FIG. 10, the various electronic components 1020 provided at the gantry 102 may be assembled at a front or at a rear of the gantry 102.

[0086] In a conventional case, since at least a portion of a rear of an inner side of a gantry is covered by use of the structure of a stator provided to entirely wrap around the gantry and the structure of a rotor provided at an inner side of the stator, the electronic components are difficult to be assembled at the rear of the gantry. Therefore, in the conventional case, the electronic components are mounted at an inner side surface of the gantry from the front of the gantry.

[0087] However, according to an exemplary embodiment of the present disclosure, the rear of the gantry 102 is provided with the diameter D that is identical to the diameter D of the front of the gantry 102, and thus an assembly space may be adequately secured to assemble the electronic components 1020 even at a rear R of the gantry 102. Therefore, a user, not only at a front F of the gantry 102, but also at the R of the gantry 102, may assemble the various electronic components 1020 having the x-ray source 110 and the x-ray detector 120 to be mounted at an inner side surface of the gantry 102.

[0088] According to exemplary embodiments of the present disclosure, a light-weight, miniaturized computed tomography apparatus 100 may be implemented by improving the structure of rotating the gantry 102.

[0089] Although a few embodiments of the present disclosure have been shown and described, it would be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the disclosure, the scope of which is defined in the claims and their equivalents.

What is claimed is:

1. A computed tomography apparatus, comprising:
 - an x-ray source to radiate x-rays;
 - an x-ray detector to detect the x-rays radiated by the x-ray source;
 - a gantry at which the x-ray source and the x-ray detector are mounted; and
 - a rail having a shape corresponding to an outer side surface of the gantry,
 wherein the gantry is configured to rotate along an inner side surface of the rail.
2. The computed tomography apparatus of claim 1, wherein:
 - a plurality of driving wheels in between the inner side surface of the rail and the outer side surface of the gantry.
3. The computed tomography apparatus of claim 2, wherein:
 - the driving wheel is mounted at the outer side surface of the gantry.
4. The computed tomography apparatus of claim 2, wherein:
 - the driving wheel is movable along the rail based on a driving force received from a driving source.
5. The computed tomography apparatus of claim 1, wherein:
 - the rail is in the shape of a ring.
6. The computed tomography apparatus of claim 1, further comprising:

- a housing forming an exterior appearance of the computed tomography apparatus,
- wherein the rail is mounted at the housing.

7. The computed tomography apparatus of claim 1, further comprising:

- a housing forming an exterior appearance of the computed tomography apparatus,
- wherein the rail is formed at an inner side surface of the housing.

8. The computed tomography apparatus of claim 1, wherein:

- the rail includes a space into which at least a portion of the gantry is inserted.

9. The computed tomography apparatus of claim 1, wherein:

- the rail is a single unit.

10. The computed tomography apparatus of claim 1, wherein:

- the gantry is configured to rotate while magnetically levitated.

11. The computed tomography apparatus of claim 10, wherein:

- the outer side surface of the gantry includes a first magnetic unit, and the inner side surface of the rail includes a second magnetic unit.

12. The computed tomography apparatus of claim 1, wherein:

- at least a part of the x-ray source and at least a part of the x-ray detector face each other.

13. A computed tomography apparatus, comprising:

- a gantry having the shape of a cylinder at which an x-ray source and an x-ray detector are mounted to face each other, and configured to rotate;

- a rail extending along an outer circumference of the gantry to guide the rotation of the gantry; and

- a driving wheel in between the gantry and the rail.

14. The computed tomography apparatus of claim 13, wherein:

- the driving wheel is rotated based on a driving force received from an outside driving source.

15. The computed tomography apparatus of claim 13, wherein:

- the driving wheel is a plurality of units, and mounted at an outer side surface of the gantry.

16. The computed tomography apparatus of claim 13, wherein:

- the rail is a single unit along an outer circumferential surface of the gantry.

17. A computed tomography apparatus, comprising:

- a gantry at which an x-ray source and an x-ray detector are mounted; and

- a rail extending along an outer circumferential surface of the gantry,

- wherein the gantry is rotatable while magnetically levitated with respect to the rail.

18. The computed tomography apparatus of claim 17, wherein:

- the gantry is in the shape of a cylinder, and the rail is in the shape of a ring and wraps around at least a portion of the gantry.

19. The computed tomography apparatus of claim 17, wherein:

- at least a part of the x-ray source and at least a part of the x-ray detector face each other.